

Data Center Consolidation

Issue 1

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Data Center Consolidation

Planning for the Data Center Consolidation project began in January 2009. The primary goals of the project include consolidating the 27 existing data centers down to two, and reducing the physical server count from around 1700 to 400 or less. In accomplishing those goals a four-million dollars per year savings is expected to be realized by the state starting FY2011. A completion date for this project is scheduled for June 30, 2010.

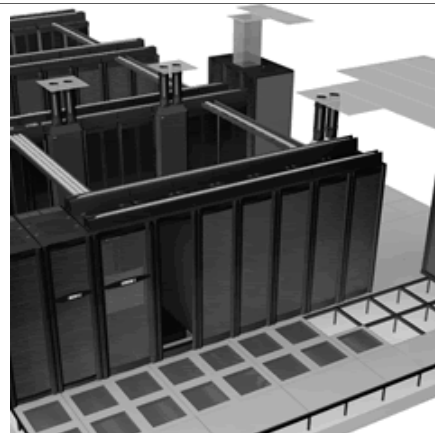
The Project Core team was formed in early January 2009, and consists of Tim Cornia, Nick Alleman, and Greg Jackson. They've been tasked with developing and executing an overall project plan. A integral part of this plan will be building an enterprise infrastructure capable of supporting the IT Hosting needs of the Executive branch agencies.

The first six month of the 18 month project were spent studying consolidation methodologies, securing and upgrading current infrastructure to enterprise levels, and en-

suring that each of the individual Campuses have viable project plans in place to meet their completion dates.

Major upgrades have been made in both the Hosting and Storage environments. HP and IBM enterprise "Nehalem" Blade Centers configured with 92 GB of RAM are being used in the hosting environment and a 300 TB SUN / Hitachi SAN with Fiber/SATA drives in the storage environment.

Other significant upgrades in SAN Networking include the purchase of two Cisco 9513's. These switches are configured with 8GB ports. This is a significant upgrade from the previous SAN network which supported only 2GB. Additionally we've increased the port count from 2 connections to 8 connections from the fabric to the storage. The anticipated throughput to the new SAN should be very noticeable improvement to our Agency customers.



Project Status

Virtualized/Moved	98
Virtualized/Not Moved	134
Not Virtualized/Moved	5
Not Virtualized/Not mov	40
Virtualized only	26
Data Centers Closed	5
Servers Decommissioned	22

Campus Leads

The overall project was divided into six separate projects based on the DTS Campus model. In each of the Campuses a Project lead was chosen. The Project leads for each of the Campuses are as follows:

Campus A - Richard Langford

Campus B - Peter Freeman

Campus C - Joe Tripp

Campus D - Terry Forsgren

Capitol - Darrus McBride

Rural Central - Jonathan Foster

Rural - Stuart Roundy

The Campus Project Leads working hand in hand with the Campus Hosting Supervisors will be responsible for the Server consolidation and the eventual move to the Salt Lake Data Center.

The CORE team holds weekly meetings with the Campus Project leads and Hosting Supervisors to discuss current status of both the consolidation and enterprise infrastructure upgrades.

Data Center Consolidation Project Objectives

- Consolidate from 27 Data Centers to 2 Data Centers
- Save \$4 million in ongoing costs
- Reduce server counts from 1700 to <400
- Create a True Enterprise Infrastructure environment

Sub Team Concept



It was decided when the project was first organized to stand up Sub Teams and appoint Leads in each of the following areas:

- Networking - Tim Cornia / LaRon Taggart
- Hosting - Darrus McBride
- Virtualization - Jonathan Foster
- Data Center - Dan Gallegos
- Storage / Backup - Roger Bishop / Nick Alleman

Additionally each of the sub teams consist

of subject matter experts chosen from each of the campuses.

These sub teams were tasked with looking at the state of their assigned environment and make recommendations for improvement. These recommendations might include: Equipment upgrades, creating new or updating current policies and procedures, and architecting and implementing new technologies.

The Sub Team Leads meet bi-monthly to coordinate their individual team plans with the other Sub Team plans to ensure compatibility and avoid potentially costly changes.

Network Sub Team

“The group has identified 25 major tasks that need to be addressed for the consolidation.”

The Network sub team has been in place for six months. The members of the team are:

- Tim Cornia—co lead
- LaRon Taggart—co lead
- Bobette Phillips—security
- Brant Davis—campus perspective
- Charmaine Malan—network operations
- John Stucki—strategic planning
- John Stevens—campus perspective

The group has identified 25 major tasks that need to be addressed for the consolidation. Those tasks have been assigned out to the team members and they have been asked to identify the steps that need to be taken to complete those tasks. That information will be used to produce a Gantt chart and help us track the tasks as they are completed by employees within DTS or consultants .

Network benchmarking continues to be the biggest concern and networking people in the campuses are being asked to gather network utilization data to better understand the applications and how they will perform on the WAN.

Virtualization Sub Team

“The Virtualization team decided to standardize on VMware 3.5 due to the maturity and stability of the version.”

The Virtualization Sub Team has been tasked with creating an enterprise VM environment and support structure. The team has been working on maturing the process and procedures for the VM environment including ESX server automatic building, storage procedures, and process checklists

DTS currently owns an enterprise VMWare License, allowing DTS unlimited use of VMware for a period of three years. While DTS could have deployed VMware 4.0 (vSphere), the virtualization team decided to standardize on VMware 3.5 due to the maturity and stability of the version. The Team is currently formulating a plan to move to vSphere 4.x in July 2010.

Virtualization Sub Team Members include:

- Team Lead/Rural: Jonathan Foster
- Capitol Campus: Patrick Funk
- Campus A: Jeff Bartholomew
- Campus B: Ken Ainge
- Campus C: Shawn Lowry
- Campus D: Benjamin Goodrich

Because campus support is one of the most important aspects of the Virtualization Sub Team, a representative from each campus has been included on the team to ensure a campus perspective is considered before making any decisions.

If you have any questions please contact your campus virtualization representative.